

From the INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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2 8 JAN 2005 Hww V PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing (day/month/year)

25.01.2005

Applicant's or agent's file reference

PN0276-PCT

08.10.2003

Priority date (day/month/year)

IMPORTANT NOTIFICATION

09.10.2002

Applicant

AMERSHAM HEALTH AS

International application No.

PCT/NO 03/00336

- 1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
- 2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

International filing date (day/month/year)

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:



European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 **Authorized Officer**

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PATENT COOPERATION TREATY PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

PN0276-PCT International application No. International Application No.		FOR FURTHER ACTION See Preli	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)		
		International filing date (day/month/year 08.10.2003	Priority date (day/month/year) 09.10.2002		
		or both national classification and IPC			
Applicant AMERSHAM	HEALTH AS				
1. This inte Authority	national preliminary and is transmitted to	examination report has been prepared bothe applicant according to Article 36.	y this International Preliminary Examining		
2. This REI	PORT consists of a to	otal of 7 sheets, including this cover she	et.		
		mpanied by ANNEXES, i.e. sheets of the the basis for this report and/or sheets co ection 607 of the Administrative Instruction	e description, claims and/or drawings which have ontaining rectifications made before this Authority ons under the PCT).		
These a	nnexes consist of a to	otal of 2 sheets.			
	ort contains indicatio	ons relating to the following items:			
	ort contains indicatio				
3. This rep	Basis of the opini	ion	or and industrial applicability		
3. This rep	Basis of the opini Priority Non-establishme	ion ent of opinion with regard to novelty, inve	ntive step and industrial applicability		
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NO 03/00336

I.	Ba	sis	of	the	re	port
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1. With regard to the **elements** of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)):

Description, Pages								
	1-9		as originally filed					
	Clai	ms, Numbers						
	1-15	5	received on 21.04.2004 with letter of 20.04.2004					
	Dra	wings, Sheets						
	1/6-0	6/6	as originally filed					
2.	With lang	Vith regard to the language , all the elements marked above were available or furnished to this Authority in the anguage in which the international application was filed, unless otherwise indicated under this item.						
	The	se elements were ava	ailable or furnished to this Authority in the following language: , which is:					
		the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).						
		the language of publi	ication of the international application (under Rule 48.3(b)).					
		the language of a tra Rule 55.2 and/or 55.3	inslation furnished for the purposes of international preliminary examination (under 3).					
3.	With inte	n regard to any nucle rnational preliminary e	otide and/or amino acid sequence disclosed in the international application, the examination was carried out on the basis of the sequence listing:					
		contained in the international application in written form.						
		filed together with the	e international application in computer readable form.					
		☐ furnished subsequently to this Authority in written form.						
		in the international application as filed has been furnished.						
		The statement that the listing has been furnitude.	he information recorded in computer readable form is identical to the written sequence ished.					
4.	The	amendments have re	esulted in the cancellation of:					
		the description,	pages:					
		the claims,	Nos.:					
		the drawings,	sheets:					

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International application No.

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 This report has been established as if (some of) the amendments had not been made, since they been considered to go beyond the disclosure as filed (Rule 70.2(c)). 				e amendments had not been made, since they have ed (Rule 70.2(c)).			
		(Any replacement sheet contain report.)	ning su	ch amendme	ents must be referred to under item 1 and annexed to this		
6.	Add	itional observations, if necessary	y:				
Ш.	Nor	n-establishment of opinion wit	h rega	ard to novelt	y, inventive step and industrial applicability		
	The	questions whether the claimed invention appears to be novel, to involve an inventive step (to be non- ious), or to be industrially applicable have not been examined in respect of:					
		the entire international applicati	ion,				
	⊠ claims Nos. 10-12,15						
because:							
	the said international application, or the said claims Nos. 10-12,15 relate to the following subject matter which does not require an international preliminary examination (specify):						
see separate sheet							
	the description, claims or drawings (indicate particular elements below) or said claims Nos. are so undesthat no meaningful opinion could be formed (specify):						
the claims, or said claims Nos. are so inadequately supported by the description that no meaningful could be formed.					y supported by the description that no meaningful opinion		
	☑ no international search report has been established for the said claims Nos. 10-12,15						
2.	A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide ar or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:						
	the written form has not been furnished or does not comply with the Standard.			ot comply with the Standard.			
☐ the computer readable form has not been furnished or does not comply with the Standard					ed or does not comply with the Standard.		
٧	V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability citations and explanations supporting such statement						
1	. Sta	Statement					
	No	velty (N)	Yes: No:	Claims Claims	2,4,8,14 1,3,5,6,7,9,13		
	Inv	ventive step (IS)	Yes: No:	Claims Claims	1-9,13,14		
	Ind	dustrial applicability (IA)	Yes: No:	Claims Claims	1-9,13,14		

2. Citations and explanations

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see separate sheet





Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The subject-matter of independent claim 10 as well as independent claim 15 relates to the treatment of the human or animal by surgery since it implicitly comprises the step of catheterisation in order to transport the dispersion from the tube to the subject. Hence, according to Rule 67.1(iv) no opinion on novelty, inventive step and industrial activity will be established for these claims and their respective dependent claims.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.1 The following documents were not cited in the international search report; copies of the documents were appended to the first written opinion:

D1 = WO-A-00/038591;

D2 = FR-A-2 249 704;

D3 = GB-A-729618;

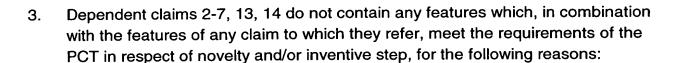
- 1.2 The following document from the international search report is cited: D4 = WO-A-00/71189.
- The present application does not meet the criteria of Article 33(1) PCT, because 2. the subject-matter of claims 1 is not new in the sense of Article 33(2) PCT.
- The document D1 discloses in figure 3 (the references in parentheses applying to 2.1 this document):

a tube (11) with a non-circular cross-section, wherein the tube is twisted along the centerline of the tube (page 8, second last paragraph to page 9, second paragraph).

Since all features of claim 1 are anticipated by the tube known of D1, the claim's subject-matter lacks novelty.

2.2 Also the tubes known from figure 43 of document D2 and the tube of document D3 anticipate the subject-matter of claim 1.

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- 3.1 The additional features of claims 5, 6 and 7 are all known from D1, cf. fig.3 and second paragraph on page 9, and the additional features of claims 3 and 13 are known from D2, so that these claims do not meet the requirement for novelty.
- 3.2 In claims 2 and 4 slight constructional changes in the tube of claim 1 are defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claims 2 and 4 lack an inventive step.
- 3.3 The closest prior art to the subject-matter of claim 14 is represented by the apparatus of D4, from which the claimed apparatus is only distinguished by the provision of a twisted tube according to claim. It is noted that the tube in D4 is of helical wound type and has a non-circular cross-section, (see fig. 1, 7 and 10).

The distinguishing feature is described in document D2 as providing the same advantages as in the present application, see in particular page 1, lines 14 to page 3, line 17. The skilled person would therefore regard it as a normal option to include this feature in the apparatus described in document D4 in order to solve the problem posed of preventing segregation of a fluid composition to be injected.

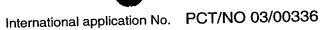
- 8. The method of manufacturing defined in independent claim 8 does not appear to bear an inventive activity, since it relates only to a further well known alternative to the methods mentioned in document D1, page 9, second paragraph.
- 9. The method of manufacturing defined in independent claim 9 is known from D1, page 9, second paragraph.

Re Item VI Certain documents cited

Certain published documents

Application No Patent No Publication date (day/month/year) Filing date (day/month/year) Priority date (valid claim) (day/month/year)

INTERNATIONAL PRELIMINARY



EXAMINATION REPORT - SEPARATE SHEET

EP-A-1269935

2.1.2003

5.6.2002

5.6.2001

The document which was also annexed to the first written opinion appears to anticipate the subject-matter of at least claims 1, 3, 4, 5, 6, 13, 14 (see figs. 2, 3, 4, 6, 9 and paragraphs 4, 20, 18, 24).

Re Item VII

Certain defects in the international application

- Reference signs are missing in the claims contrary to the requirements of Rule 1. 6.2(b) PCT.
- The independent claims are not in two-part form, contrary to the requirements of 2. Rule 6.3(b) PCT.
- The prior art known from the documents D1 to D3 is not mentioned in the 3. description, contrary to the requirements of Rule 5.1(a)(ii) PCT.

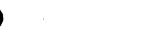
Re Item VIII

Certain observations on the international application

- Independent claim 1 does not meet the requirements of the PCT, since its scope 1. is much broader than justified by the description (Art. 6 PCT, claims must be fully supported by the description). The claims 1 to 9 relate to a tube and its manufacturing in general, whereas the whole description only relates to infusion lines. Also the apparatus according to claim 13 could be any type of apparatus contrary to what is disclosed in the description.
- Claim 14 lacks clarity (Art. 6 PCT), since it is not apparent which particular 2. features shall be implied by the statement "for use in administration of a gravity segregating dispersion". This does not define any specific limitation to the apparatus. Even a dialysis system which is equipped with a twisted tube would fall under the scope of this claim (cf. the document mentioned under Item VI above).

Claims:

- A tube with a non-circular internal cross-section, wherein the tube is twisted along the centerline of the tube.
- 2. A tube as claimed in claim 1 having an internal cross-section of 2-10 mm².
- 3. A tube as claimed in claim 1 or 2 further having an external circular cross-section.
- 4. A tube as claimed in any of claims 1 to 3 having an oval cross-section.
- A tube as claimed in any of claims 1 to 3 having a cross-section comprising 2-5 rounded lobes.
- 6. A tube as claimed in any of claims 1 to 5 twisted at a constant pitch.
- 7. A tube as claimed in any of claims 1 to 6 made of a material selected from Fluorplastic, Liquid-Crystal Polymer, Nylon, PEEK, Polycarbonate, Polyimide, Polypropylene, Polyurethane, PTFE, PVC, Silicone, Thermoplastic Elastomere and Polyethylene.
- 8. A method of manufacturing a tube as claimed in any of claims 1 to 7 by continuous extrusion by the following steps:
 - introducing the tube material into a extruder comprising a nozzle having a configuration complying with the internal cross-section and a short section of the tube to be manufacturing,
 - ii) setting the nozzle to rotate at a set speed.
- A method of manufacturing a tube as claimed in any of claims 1 to 7 comprising modification of a preformed tube by heating and twisting.
- 10. A method of administering a segregating dispersion to a subject using a tube as claimed in any of claims 1 to 7.
- 11. A method as claimed in claim 10 wherein the dispersion is an ultrasound contrast agent comprising gas microbubbles and wherein the administration is by continuous infusion.
- 12. A method as claimed in claims 10 or 11 wherein the dispersion is admixed with a flushing medium prior to administration to the subject.
- 13. Apparatus comprising a tube as claimed in any of claims 1-7.





- 14. Apparatus as claimed in claim 13 for use in administration of a gravity segregating dispersion to a subject, said apparatus further comprising:
 - i) a delivery device adapted to receive and deliver a dispersion,
 - ii) an intravenous cannula
- 15. Use of a tube as claimed in any of claims 1-7 in administration of an ultrasound contrast agent by continuous infusion.